User´s Manual

WR series

Antes de utilizar el equipo, lea la sección "Precauciones de seguridad" de este manual. Conserve este manual para futuras consultas.

Before operating the device, please read the "Safety precautions" section of this manual. Retain this manual for future reference.

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- *8 x WR-8826 (1150W @ 4 Ohms)*
- *16 x WR-8826 (2100W @ 2 Ohms)*
- *4 x WR-6412 or WR-6415 (1150W @ 4 Ohms)*
- *8 x WR-6412 or WR-6415 (2100W @ 2 Ohms)*
- *16 x WR-6412 or WR-6415 (3700W @ 2 Ohms)*

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Conserve y lea todas estas instrucciones.
Siga todas las advertencias.
El signo de exclamación dentro de un triángulo indica la existencia de componentes internos cuyo reemplazo puede afectar a la seguridad.

Keep these instructions.
Heed all warnings. Follow all instructions.
The exclamation point inside an equilateral triangle indicates the existence of internal components whose substitution may affect safety.

El doble cuadrado indica equipo de Clase II.

The double square indicates Class II device.

Las especificaciones se encuentran en la etiqueta de la parte posterior del producto.

The specifications can be found on the rear label of the product.

El colgado del equipo sólo debe realizarse utilizando los herrajes de colgado recomendados y por personal cualificado.

The appliance should be flown only from the rigging points and by qualified personnel.

Equipo IP-56 según la norma IEC 60529: 1989 + M1 @ 1999 con un ángulo horizontal mínimo de -2º.

IP-56 equipment (IEC 60529: 1989 + M1 @ 1999). Minimum horizontal angle -2º.

Este símbolo indica que el presente producto no puede ser tratado como residuo doméstico normal, sino que debe entregarse en el correspondiente punto de recogida de equipos eléctricos y electrónicos.

This symbol on the product indicates that this product should not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment.

Equipo diseñado para funcionar entre -25ºC y 70ºC. La humedad relativa máxima del 95% con 40ºC de temperatura ambiente.

Working temperature ranges from -25ºC to 70ºC. The maximum relative humidity of 95% with ambient temperature 40ºC.

El cableado exterior conectado al equipo requiere de su instalación por una persona instruida o el uso de cables flexibles ya preparados.

The outer wiring connected to the device requires installation by an instructed person or the use of a flexible cable already prepared.

El equipo cuenta con dos conectores de entrada en paralelo para facilitar la conexión de varias cajas en paralelo.

Note that the two input connectors are wired in parallel to provide easy parallel connection of several enclosures.

No emplace altavoces en proximidad a equipos sensibles a campos magnéticos, tales como monitores de televisión o material magnético de almacenamiento de datos.

Do not place loudspeakers in proximity to devices sensitive to magnetic fields such as television monitors or data storage magnetic material.

No existen partes ajustables por el usuario en el interior de este equipo. Cualquier operación de mantenimiento o reparación debe ser realizada por personal cualificado. Es necesario el servicio técnico cuando el aparato se haya dañado de alguna forma, tal como que haya caído líquido o algún objeto en el interior del aparato, haya sido expuesto a lluvia o humedad, no funcione correctamente o haya recibido un golpe.

No user serviceable parts inside. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.

Limpie con un paño seco. No use limpiadores con disolventes.

Clean only with a dry cloth. Do not use any solvent based cleaners.

GARANTÍA

Todos nuestros productos están garantizados por un periodo de 24 meses desde la fecha de compra.

Las garantías sólo serán válidas si son por un defecto de fabricación y en ningún caso por un uso incorrecto del producto.

Las reparaciones en garantía pueden ser realizadas, exclusivamente, por el fabricante o el servicio de asistencia técnica autorizado.

Otros cargos como portes y seguros, son a cargo del comprador en todos los casos.

Para solicitar reparación en garantía es imprescindible que el producto no haya sido previamente manipulado e incluir una fotocopia de la factura de compra.

WARRANTY

All D.A.S. products are warrantied against any manufacturing defect for a period of 2 years from date of purchase.

The warranty excludes damage from incorrect use of the product.

All warranty repairs must be exclusively undertaken by the factory or any of its authorised service centers.

To claim a warranty repair, do not open or intend to repair the product.

Return the damaged unit, at shippers risk and freight prepaid, to the nearest service center with a copy of the purchase invoice.

DECLARACIÓN DE CONFORMIDAD
DECLARATION OF CONFORMITY

D.A.S. Audio, S.A.
C/ Islas Baleares, 24 - 46988 - Pol. Fuente del Jarro - Valencia. España (Spain).

Declara que la ***serie WR***:
Declares that ***WR series***:

Cumple con los objetivos esenciales de las Directivas:
Abide by essential objectives relating Directives:

- Low Voltage Directive 2006/95/EC

- Regulation (EU) No 305/2011 - Constrution Products
  (Certificate of Constancy of Performance: 0359-CPR-00429)

Y es conforme a las siguientes Normas Armonizadas Europeas:
In accordance with Harmonized European Norms:

- EN 60065:2002 +A1:2006 + A11:2008 + A2:2010 + A12:2011
  Audio, video and similar electronic apparatus. Safety requirements.

- EN 54-24:2008
  Fire detection and fire alarm systems. Part 24: Components of voice alarm systems. Loudspeakers.

SYSTEM DESCRIPTION

Introduction

The WR (Weather Resistant) series is a series of products aimed at the outdoor installation market.

This series is EN 54 certified according to the EN 54-24:2008 standard (Fire detection and fire alarm systems. Part 24: Components of voice alarm systems. Loudspeakers).

This series is composed of 3 base models:

- WR-8826 a dual 6" two-way
- WR-6412 a 12" two-way
- WR-6415 a 15" two-way

Each of these models will be offered in two exposure ratings:
- CX "covered exposure" for applications where cabinets are covered or protected.
- DX "direct exposure" where cabinets are unprotected and directly exposed to the environment.

The CX versions are protected with a thick exterior Iso-Flex paint coating.
The DX versions augment the protection rating by employing a supplementary fiberglass exterior finish.

Stainless steel fittings and mounting hardware are offered for both versions.

The WR-8826 models are equipped with the M-1 driver employing a 1" annular diaphragm and an 80º x 80º horn geometry.

The WR-6412 and WR-6415 models use D.A.S. loudspeakers equipped with robust 4" voice coils and the M-75 compression driver with 1.5" exit and a 3" voice coil. These models with 60º x 40º horn geometry.

All the speaker components are treated for weather resistance and extended durability in extreme environments.

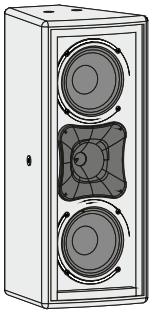
The WR series enclosures are manufactured using exterior grade plywood. Black, white or military grey color options are available in both exposure ratings (IP56 according to IEC 60529 standards).

The perforated stainless steel protective grilles are painted to match the cabinet finish and backed with foam over a vapor barrier to avoid the entry of water.

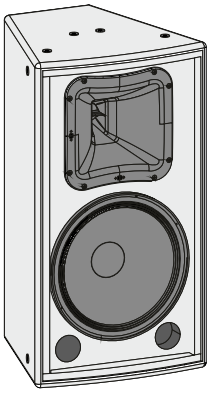
The barrier strip connector is protected by a waterproof cover, and the connection wire equipped with a cable gland.

Models and versions;

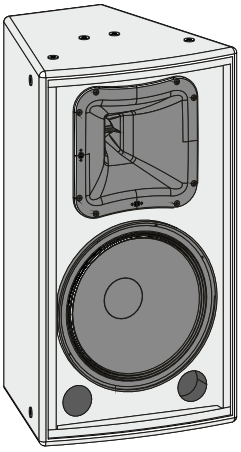
WR-8826:
WR-8826CX, covered exposure, black
WR-8826DX, direct exposure, black
WR-8826CXW, covered exposure, white
WR-8826DXG, direct exposure, grey



WR-6412:
WR-6412CX, covered exposure, black
WR-6412DX, direct exposure, black
WR-6412CXW, covered exposure, white
WR-6412DXG, direct exposure, grey

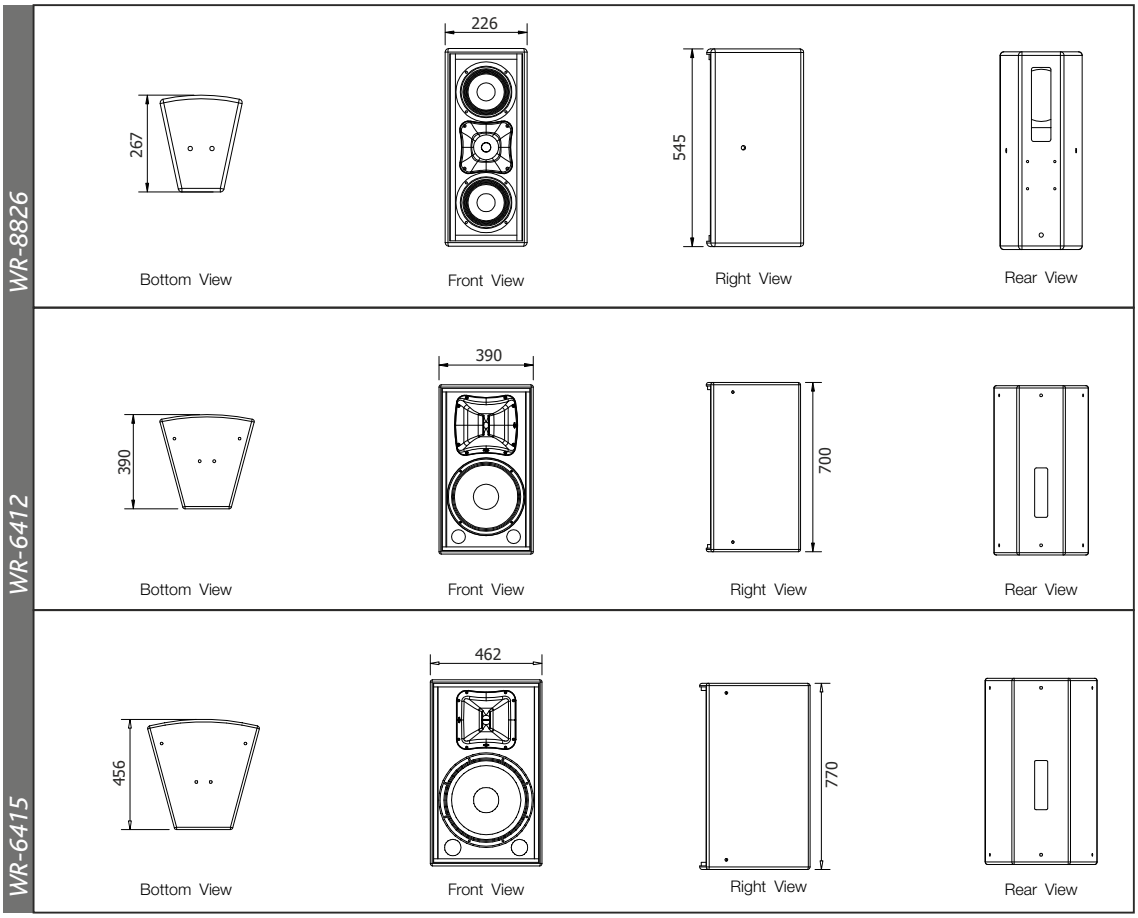


WR-6415:
WR-6415CX, covered exposure, black
WR-6415DX, direct exposure, black
WR-6415CXW, covered exposure, white
WR-6415DXG, direct exposure, grey



LINE DRAWINGS

ALL DIMENSIONS IN MILIMETERS



CONNECTION

The WR series includes protection methods to ensure the best connectivity conditions even under harsh weather conditions.

It includes a waterproof cover which gives us a double connection chamber.

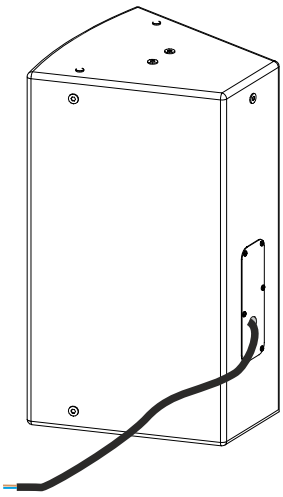
After the installation is finished, don't remove any safety parts in normal working conditions. Security operations and/or technical services should be performed by authorised staff.

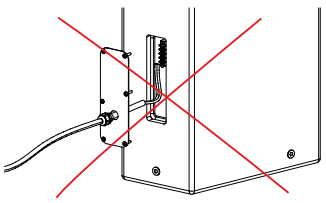
The system includes 5m of connection wire ready to use in the application.

The color code is:
.- Blue --> +
.- Brown --> -

To obtain a better performance and achieve the best optimization of the system parameters, DAS AUDIO recommends using the WR cabinets with amplifier models D-20 or D-100 and the DSP2040 processor as shown in the configurations in this manual.

For assembling SPEAKON connectors, follow the amplifier's user manual for the correct connection.

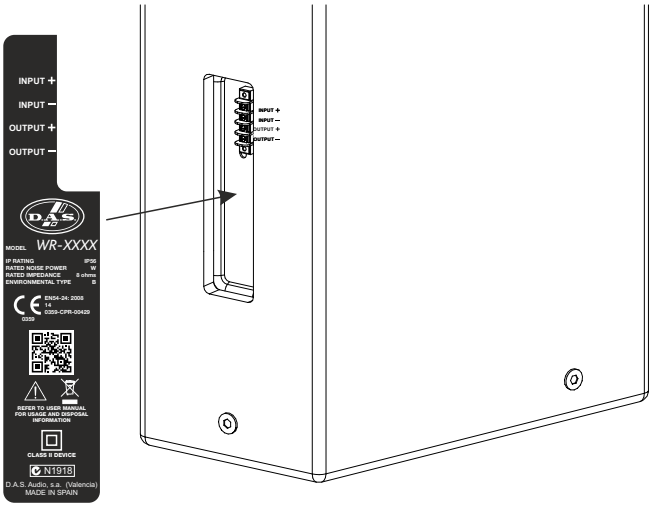




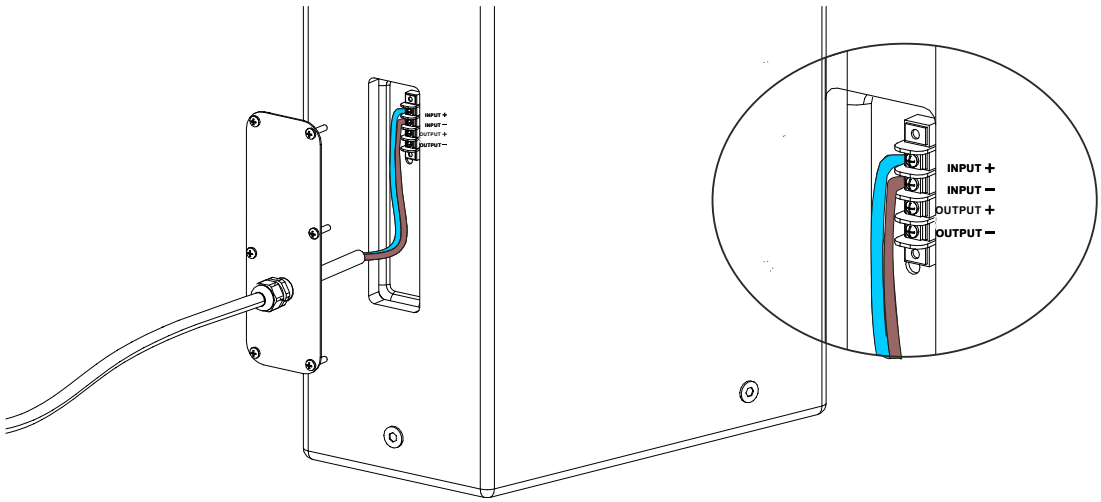
Don't remove after installation

The system includes 5m of connection wire ready to use in the application. If more than 5m of connection wire is required, a longer cable can be used. If so proceed as follows:

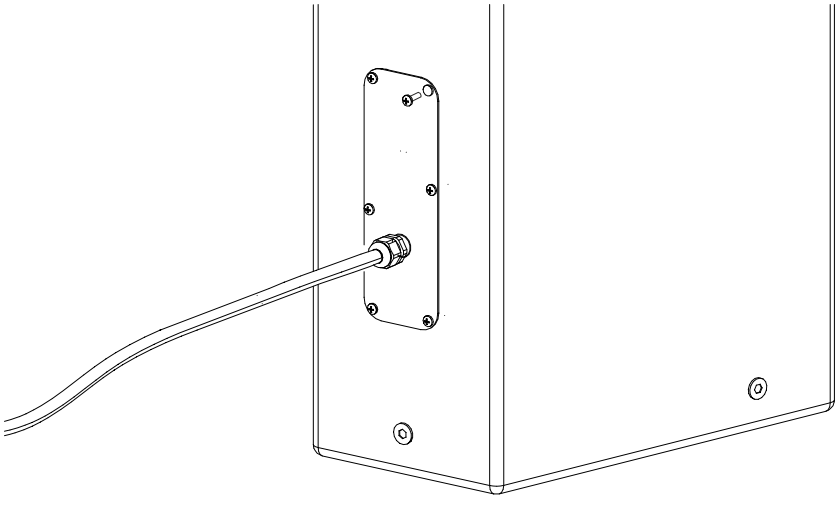
1.- Prepare the rear part of the enclosure for cable connection, removing the existing cable.

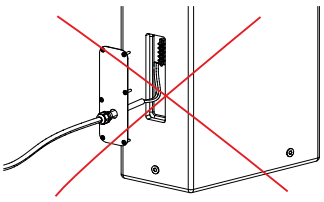


2.- Screw the cables to the barrier strip following the label indications.



3.- Fix the cover of the rear part of the enclosure with six screws.





Don't remove after installation

TECHNICAL SPECIFICATIONS

Technical Specifications

	WR-6412	*WR-6415*	*WR-8826*
RMS (Average) Power Handling[R]:	400 W	400 W	200 W
Program Power Handling[P]:	800 W	800 W	400 W
Peak Power Handling[K]:	1600 W	1600 W	800 W
On-axis Frequency Range (-10dB):	60 Hz - 20 kHz	55 Hz - 20 kHz	70 Hz - 22 kHz
Nominal Impedance[Z]:	8 Ohms	8 Ohms	16 Ohms
Minimum Impedance[Z]:	8,2 Ohms @ 135 Hz	8 Ohms at 133 Hz	13.6 Ohms @ 200Hz
On-axis Sensitivity, 1w/1m :	98 dB SPL	99 dB SPL	93 dB SPL
Rated Peak SPL at full power:	130 dB SPL	131 dB SPL	122 dB SPL
Nominal -6dB Beamwidths:	60º x 40º Rotatable	60º x 40º Rotatable	80º x 80º
Enclosure Material:	Birch Plywood	Birch Plywood	Birch Plywood
Color/Finish:	CX, Black or White/Polyurea DX, Military Grey or Black/ Fiberglass	CX, Black or White/Polyurea DX, Military Grey or Black/ Fiberglass	CX, Black or White/Polyurea DX, Military Grey or Black/ Fiberglass
Transducers/Replacement Parts:	LF: 12AV/GM 12P HF: M-75/GM M-75	LF: 15AV/GM 15P HF: M-75/GM M-75	LF: 2 x 6B/6B HF: M-1/M-1
Grille:	Stainless steel	Stainless steel	Stainless steel
Connector:	Barried Strip	Barried Strip	Barried Strip
Dimensions (H x W x D):	70 x 39 x 39 cm 27,6 x 10,4 x 10,4 in	77 x 46,2 x 45,5 cm 30,3 x 18,2 x 17,9 in	54,5 x 22,6 x 26,7 cm 21,5 x 8,9 x 10,5 in
Net Weight:	24 kg (52,8 lb)	28 kg (61,6 lb)	10 kg (22 lb)
Optional Accessories:	AXU-WR6412	AXU-WR6415	AXU-WR8826, AXW-1

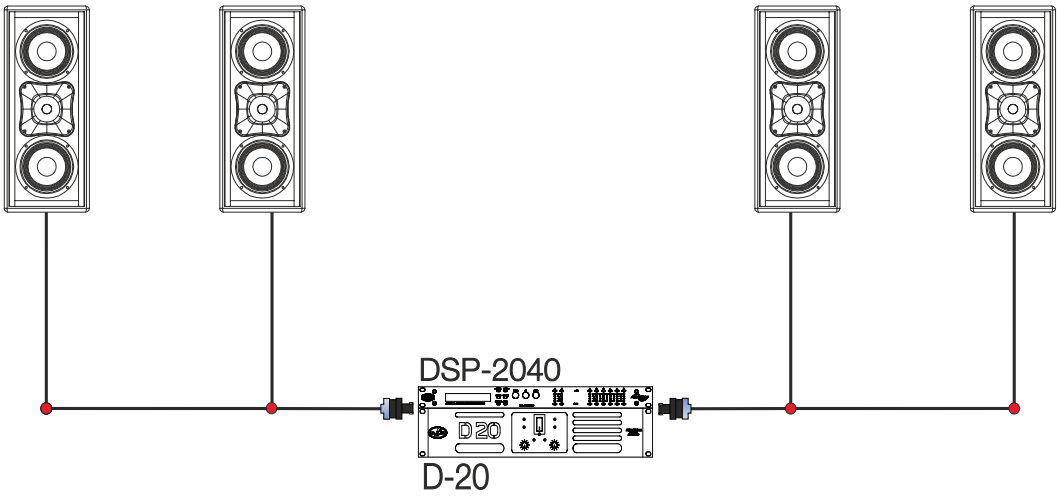
EN54-24 Based Technical Specifications

	WR-6412	*WR-6415*	*WR-8826*
Nominal Power [T]:	300 W	300 W	200 W
On-axis Frequency Range (-10dB):	60 Hz - 20 kHz	55 Hz - 20 kHz	70 Hz - 22 kHz
Nominal Impedance:	8 Ohms	8 Ohms	8 Ohms
Minimum Impedance:	8,2 Ohms @ 135Hz	8 Ohms @ 133 Hz	6,7 Ohms @ 8320 Hz
On-axis Sensitivity 1w/4m[S]:	82,5 dB	82dB	75,3dB
Measured Maximum SPL at 4m[M]:	106,7 dB	107 dB	97,05 dB
Horizontal Coverage Angles (-6dB)[C]:	500Hz, 135º. 1kHz, 92º. 2kHz, 70º. 4kHz, 65º.	500Hz, 120º. 1kHz, 84º. 2kHz, 60º. 4kHz, 60º	500Hz, 194º. 1kHz, 123º. 2kHz, 108º. 4kHz, 85º.
Vertical Coverage Angles (-6dB)[C]:	500Hz, 144º. 1kHz, 122º. 2kHz, 57º. 4kHz, 42º.	500Hz, 127º. 1kHz, 105º. 2kHz, 54º. 4kHz, 40º	500Hz, 85º. 1kHz, 35º. 2kHz, 35º. 4kHz, 75º.
Enclosure Material:	Birch Plywood	Birch Plywood	Birch Plywood
Color/Finish:	CX, Black or White/Polyurea DX, Military Grey or Black/ Fiberglass	CX, Black or White/Polyurea DX, Military Grey or Black/ Fiberglass	CX, Black or White/Polyurea DX, Military Grey or Black/ Fiberglass
Transducers/Replacement Parts:	LF: 12AV/GM 12P HF: M-75/GM M-75	LF: 15AV/GM 15P HF: M-75/GM M-75	LF: 2 x 6B/6B HF: M-1/M-1
Environmental Type:	Type B	Type B	Type B
Environmental Performance:	EN 60529 IP 56	EN 60529 IP 56	EN 60529 IP 56
Grille:	Stainless steel	Stainless Steel	Stainless steel
Connector:	Undeterminated cable	Barried Strip	Barried Strip
Dimensions (H x W x D):	70 x 39 x 39 cm 27,6 x 10,4 x 10,4 in	77 x 46,2 x 45,5 cm 30,3 x 18,2 x 17,9 in	54,5 x 22,6 x 26,7 cm 21,5 x 8,9 x 10,5 in
Net weight:	24 kg (52,8 lb)	28 kg (61,6 lb)	10 kg (22 lb)
Optional Accessories:	AXU-WR6412	AXU-WR6415	AXU-WR8826, AXW-1

[T]Nominal Power based on a 100h test using a 6dB crest factor pink noise signal filtered according to the IEC 60268-1:1985 norm and band-pass filtered with Butterworth 24dB/Oct filters from 89Hz to 11,2kHz.
[S]Sensitivity and Max SPL measured using a 6dB crest factor pink noise, averaged from 100Hz to 10kHz in 1/3 Octave bands.
[C]coverage measured from 500Hz to 4kHz in Octave bands.
[R]Based on a 2 hour test using a 6dB crest factor pink noise signal.
[P]Conventionally, 3dB higher than the RMS measure, although this already, utilizes a program signal.
[K]Corresponds to the signal crests for the test described in [R].
[M]Obtain from a time window of a 30 seconds.
[Z]Impedance of a frequency range of 20 Hz - 2 kHz for better optimization of amplifiaction devices,

CONFIGURATIONS

4 x WR-8826
625W @ 8 Ohms



Two WR-8826 (16ohms each) in parallel mode per channel.
Refer to the user manual of the D-20 amplifier for SPEAKON connection.

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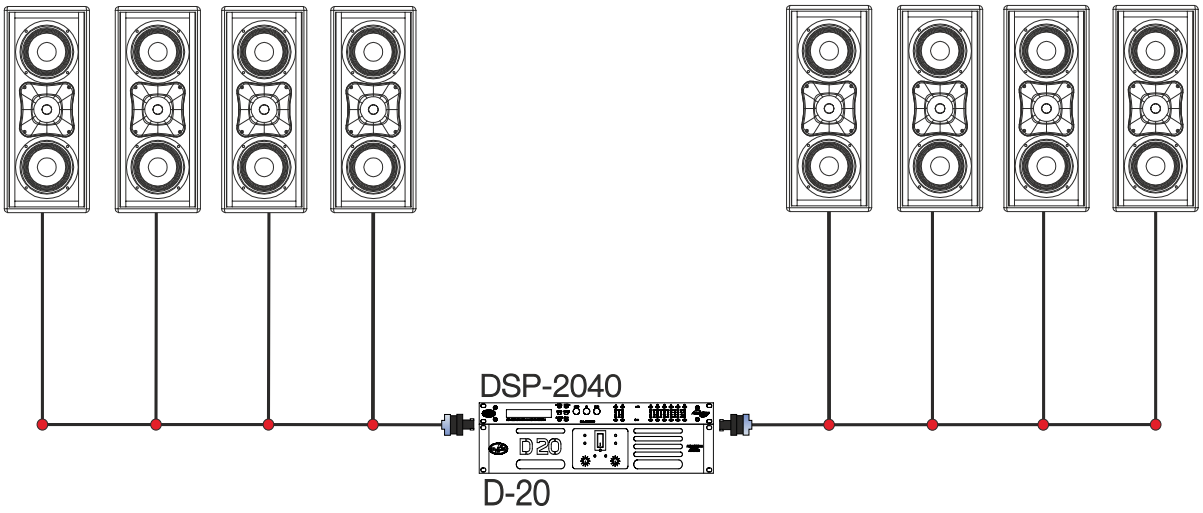
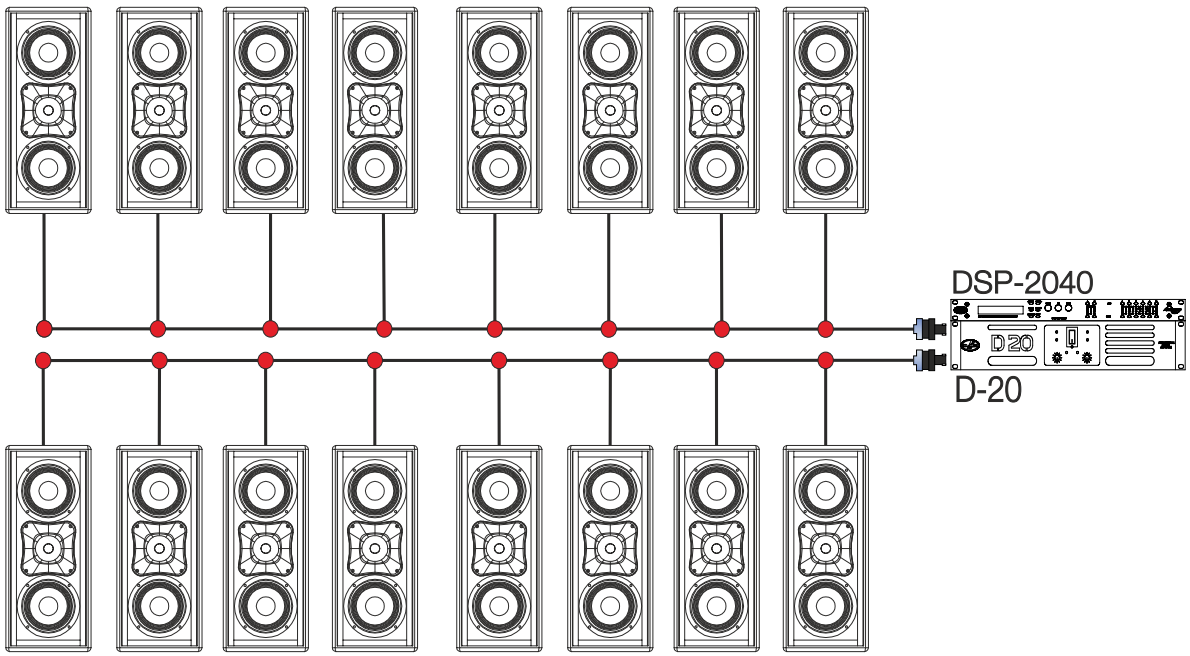
8 x WR-8826
1150W @ 4 Ohms



Four WR-8826 (16ohms each) in parallel mode per channel.
Refer to the user manual of the D-20 amplifier for SPEAKON connection.

16 x WR-8826
2100W @ 2 Ohms



Eight WR-8826 (16ohms each) in parallel per channel.
Refer to the user manual of the D-20 amplifier for SPEAKON connection.

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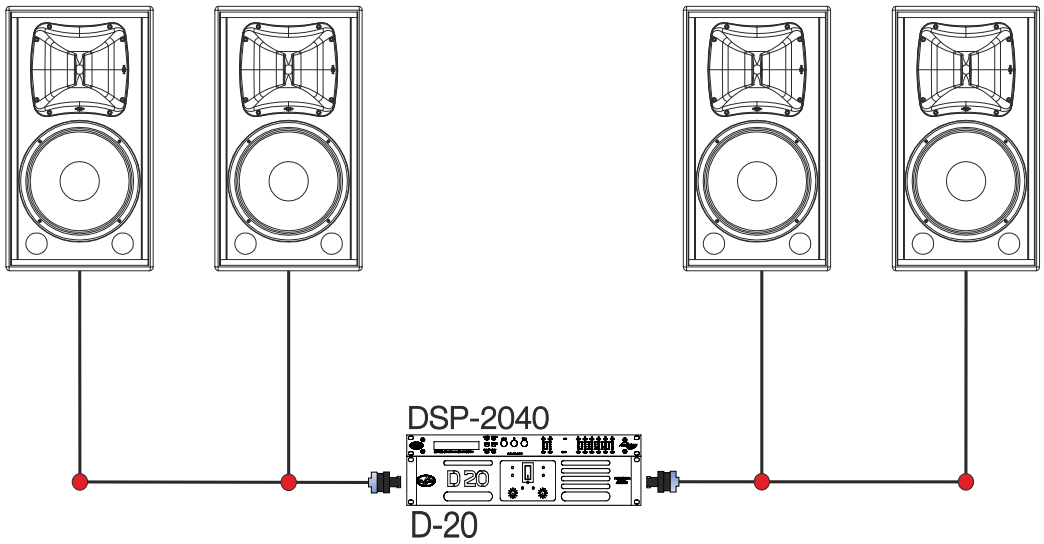
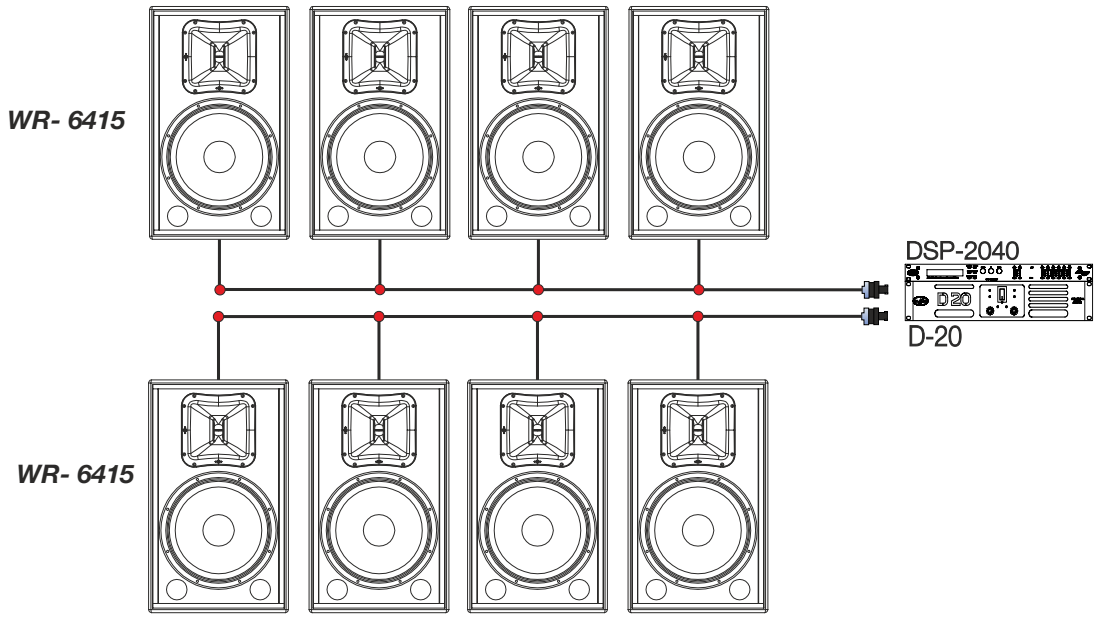
4 x WR-6412 (or WR-6415)
1150W @ 4 Ohms

WR-6412 ***WR-6412***



Two WR-6412 (8 ohms each) in parallel per channel.
Refer to the user manual of the D-20 amplifier for SPEAKON connection.

8 x WR-6412 (or WR-6415)
2100W @ 2 Ohms



Four WR-6415 (8 ohms each) in parallel per channel.
Refer to the user manual of the D-20 amplifier for SPEAKON connection.

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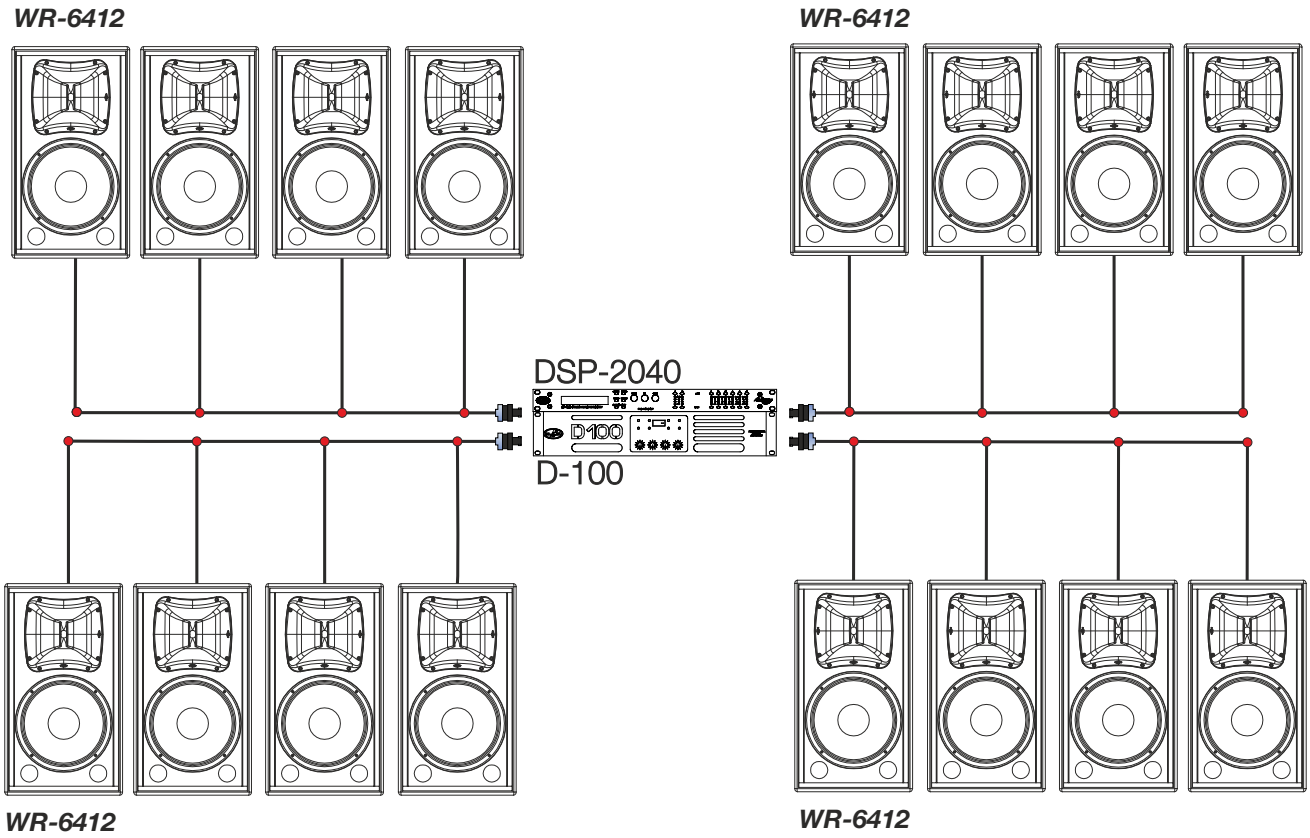
16 x WR-6412 (or WR-6415)
3700W @ 2 Ohms



Four WR-6412 (8 ohms each) in parallel per channel
Refer to the user manual of the D-100 amplifier for SPEAKON connection.

INSTALLATION INSTRUCTIONS

Warnings

This manual contains needed information for flying D.A.S. Audio systems, description of the elements and safety precautions. To perform any operations related to flying the system, read the present document first, and act on the warnings and advice given. The goal is to the allow the user to become familiar with the mechanical elements required to fly the acoustic system, as well as the safety measures to be taken during set-up and teardown.

Only experienced installers with adequate knowledge of the equipment and local safety regulations should fly speaker boxes. It is the user's responsibility to ensure that the systems to be flown (including flying accessories) comply with state and local regulations.

The working load limits in this manual are the results of tests by independent laboratories. It is the user's responsibility to stay within safe limits. It is the user's responsibility to follow and comply with safety factors, resistance values, periodical supervisions and warnings given in this manual. Product improvement by means of research and development is on going at D.A.S. Specifications are subject to change without notice.

To this date, there is no international standard regarding the flying of acoustic systems. However, it is common practice to apply 5:1 safety factors for enclosures and static elements. For slings and elements exposed to material fatigue due to friction and load variation the following ratios must be met; 5:1 for steel cable slings, 4:1 for steel chain slings and 7:1 polyester slings. Thus, an element with a breaking load limit of 1000 kg may be statically loaded with 200 kg (5:1 safety factor) and dynamically loaded with 142 kg (7:1 safety factor).

When flying a system, the working load must be lower than the resistance of each individual flying point in the enclosure, as well as each box. Hanging hardware should be regularly inspected and suspect units replaced if in doubt. This is important to avoid injury and absolutely no risks should be taken in this respect. It is highly recommended that you implement an inspection and maintenance program on flying elements, including reports to be filled out by the personnel that will carry out the inspections. Local regulations may exist that, in case of accident, may require you to present evidence of inspection reports and corrective actions after defects were found.

Absolutely no risks should be taken with regards to public safety. When flying enclosures from ceiling support structures, extreme care should be taken to assure the load bearing capabilities of the structures so that the installation is absolutely safe. Do not fly enclosures from unsafe structures. Consult a certified professional if needed. All flying accessories that are not supplied by D.A.S. Audio are the user's responsibility. Use at your own risk.

Periodicaly check the system replacing the estructural elements which could be deteriorated.

Introduction

The WR system includes a double connection chamber to achieve better connectivity conditions even under harsh weather conditions.

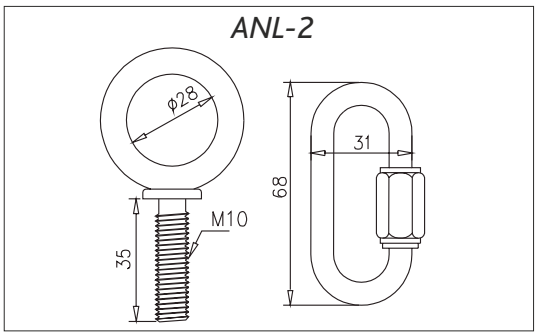
The minimum angle in the horizontal plane to ensure the max IP ratio IP56 is -2º.

Flying with eyebolts

The WR series models feature internal steel flying points with mounting threads. These eyebolt flying points are factory sealed with M10 screws, which are replaced with eyebolts on the flying points as required. Flying with eyebolts is very economical and safe, and is specially recommended for fixed installations where the boxes are permanently fixed.

The Allen-head screws must be removed and replaced by M10 eyebolts on one side of the enclosure. Each rigging point has a 200 kg (440 lb) working load limit. Then choose the slings or chains of required load resistance and length, bearing in mind that the length difference between the front and back slings or chains will determine the vertical orientation. Alternatively, the back bottom eyebolt point can be used to provide vertical orientation.

The ***ANL-2*** set is an optional set of four eyebolts and four carabiners. (Dimensions below are in millimetres).

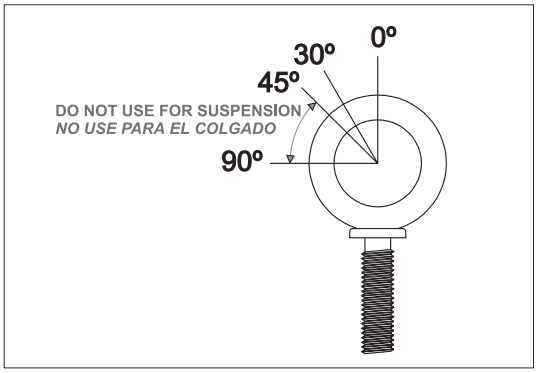


Each ***ANL-2*** eyebolt has a rated working load of 200 kg. (440 lb). Each ***ANL-2*** carabiner has a working load of 330 kg (726 lb). If using other hardware, make sure it is rated to handle the required load.

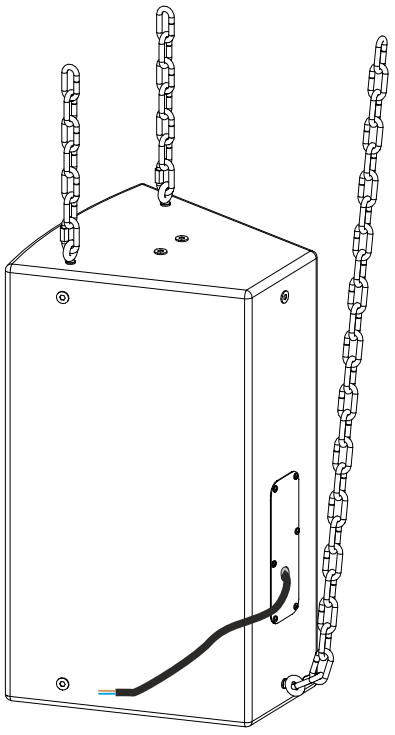
When using eyebolts it is important to bear in mind that the rated working load is only true for a load applied in the plane of the eye, and is significantly reduced for other angles. The drawing illustrates the concept. The table shows the variation of the working load as a function of the load angle.

In the case of the ***ANL-2*** eyebolt, this means that the 200 kg working load becomes 60 kg at 45 degrees. Do not use eyebolt flying if the load angle is higher than 45 degrees.

	0 Degrees	30 Degrees	45 Degrees	More than 45 Degrees
% of working load	100%	65%	30%	25%

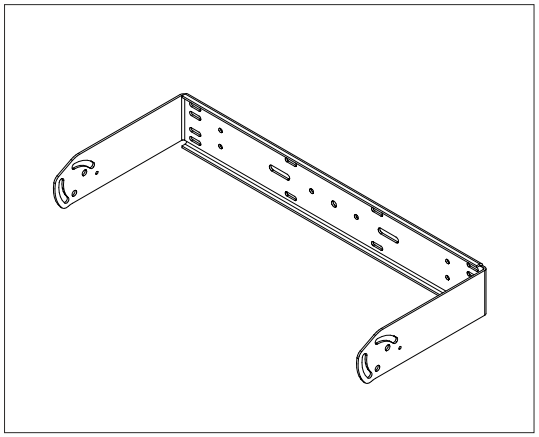


The following illustrations show different views on eyebolt flying for a single box. The length of the back cables or chains determines the vertical angle of the box.



Rigging accessories

AXU-WR8826 / AXU-WR6412 / AXU-WR6415



The AXU-WR8826 /AXU-WR6412 /AXU-WR6415 are not included with the WR-8826 / WR-6412 and WR-6415 respectively in the packaging.

The AXU accessories have been designed to enable mounting the speakers in a horizontal and vertical position.

They can also be installed on walls or ceilings.

Mounting instructions:

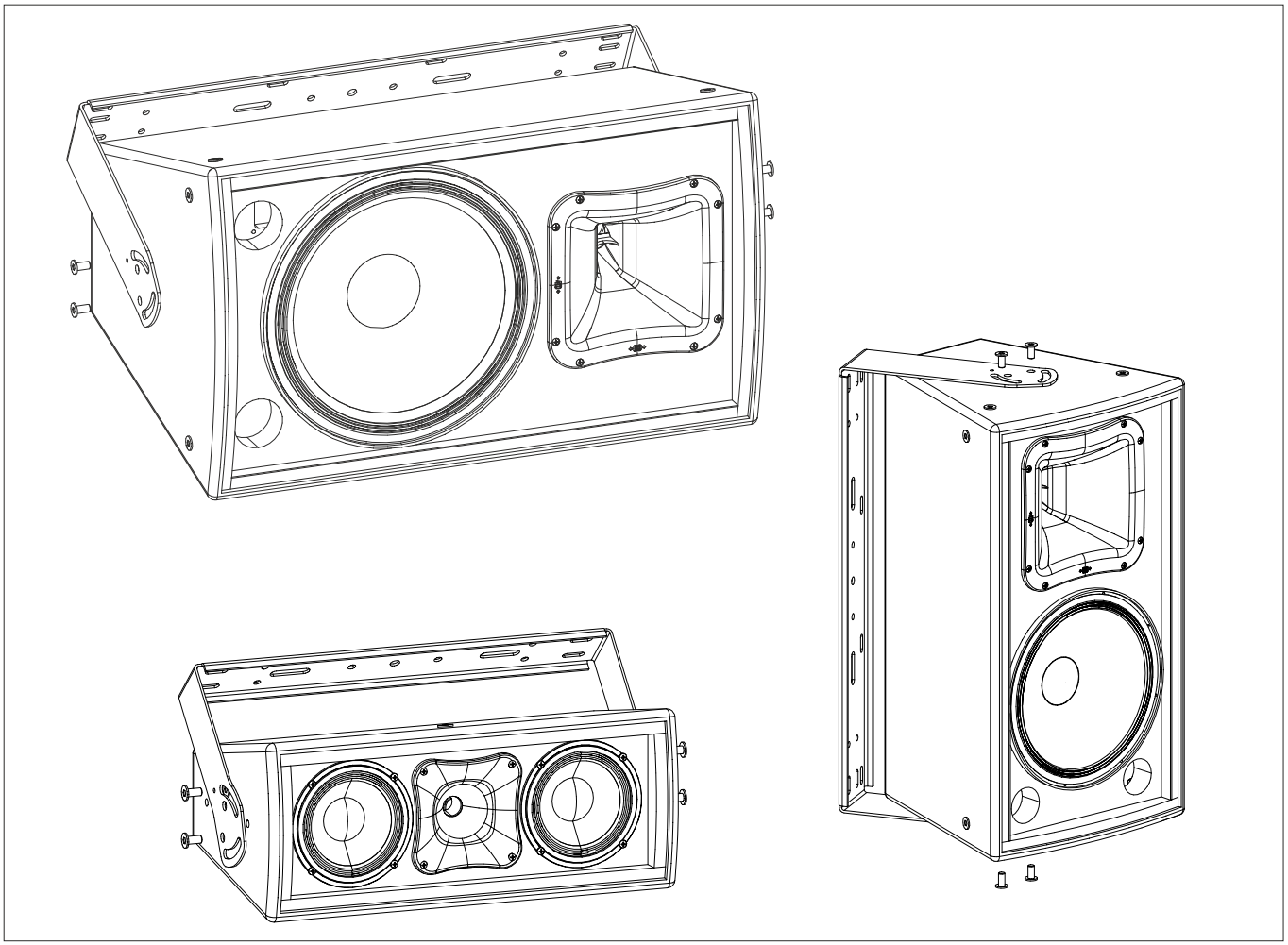
1.- Remove the top and bottom screws from the speaker cabinet.

2.- Position the AXU-WRXXXX on the wall or ceiling.

3.- Position the WR cabinet between the arms of the support. Beware that the AXU support allows for an asymmetric arc. Install in the appropriate position.

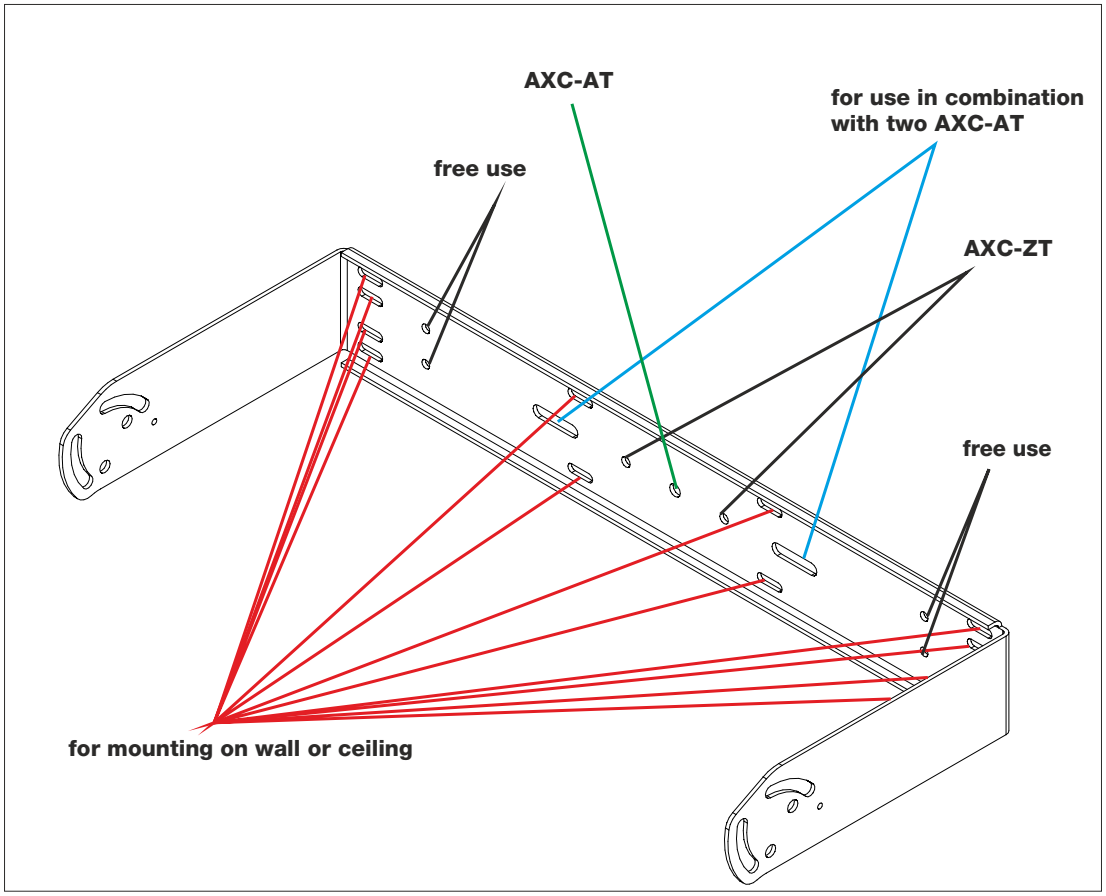
4.- Attach the unit to the support using the screws (step 1) but do not tighten.

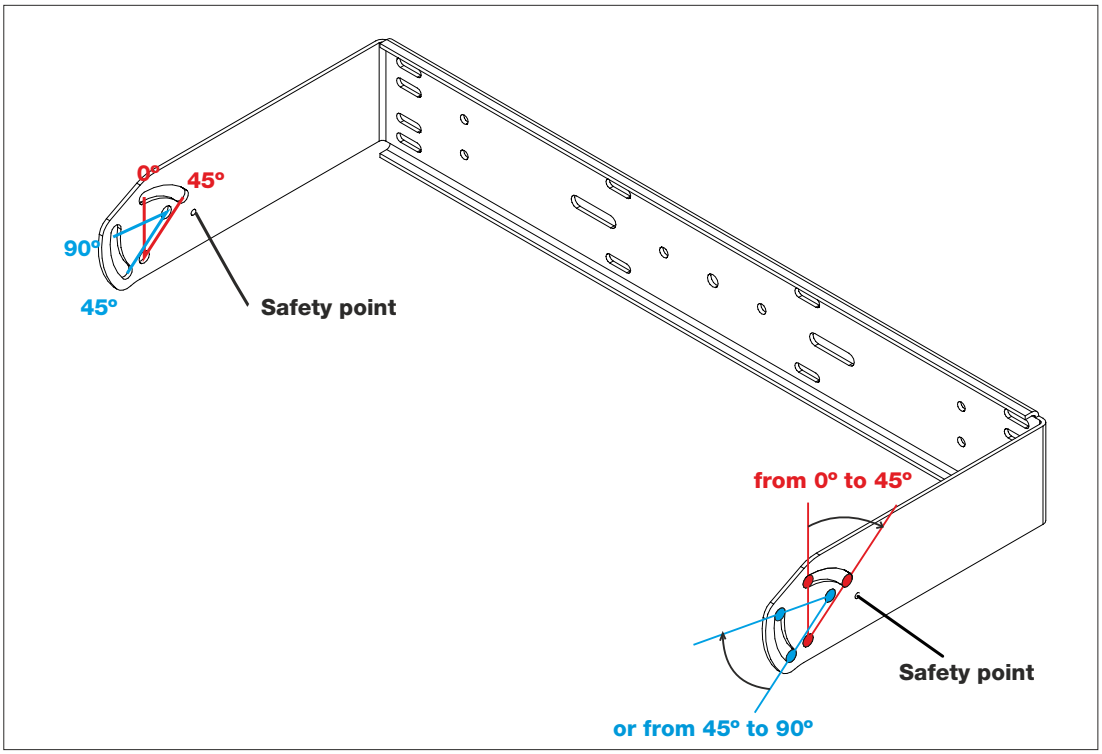
5.- Aim the unit to the desired angle and tighten screws.



Description of the AXU-WR8826 / AXU-WR6412 / AXU-WR6415

Refer to the user's manual of accessories, on our website, for more information.





TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
1 - No sound from any units.	1.1 – No signal present in the amplifier	1.1.1 – Check that the amplifier is on. 1.1.2 – Check that the gain is set above its minimum setting. 1.1.3 – Check that there is a signal to your amplifier from your mixer.
	1.2 – Defective cable.	1.2.1 – Check that the cable from the sound source to the UNIT is connected correctly. Replace the cable if defective. 1.2.2 – Check that none of the connected cables are cut or frayed.
	1,3 – High number of speakers connected in the same amplifier's channel.	1,3,1 – Check the minimum impedance requirements of your amplifier.
2 – NO sound from one unit.	2.1 – No signal present in the UNIT..	2.1.1 – Check that the cable between the UNITS is connected correctly. Replace the cable if defective. 2.1.2 – Check the balance control on the mixer.
3 – Poor stereo image or weak bass output	3.1 – Wrong connection	3.1.1 – Check the polarities (+/-) and be sure that all the speakers are well connected.

www.dasaudio.com

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D.A.S. AUDIO, S.A.
C/. Islas Baleares, 24
46988 Fuente del Jarro
Valencia, SPAIN
Tel. 96 134 0525
Tel. Intl. +34 96 134 0860
Fax 96 134 0607
Fax Intl. +34 96 134 0607

D.A.S. AUDIO OF AMERICA, INC.
Sunset Palmetto Park
6816 NW 77th Court.
Miami, FL. 33166 - U.S.A.
TOLL FREE: 1-888DAS4USA
Tel. +1 305 436 0521
Fax +1 305 436 0528

D.A.S. AUDIO ASIA PTE. LTD.
25 Kaki Bukit Crescent #01-00/02-00
Kaki Bukit Techpark 1
Singapore 416256
Tel. +65 6742 0151
Fax +65 6742 0157